

## A critical note on some species of *Hexacentrus* (Orthopt.)

Haruo FURUKAWA

Biological Laboratory, Keisikawa Botanic Garden, Science  
Faculty, Tokyo Imperial University

1. *Hexacentrus japonicus* should be divided into two subspecies.

### *Hexacentrus japonicus hareyamai* subsp. nov.

The relative characteristics which differentiate it from the typical form are as follows:—Vertex of fastigium less constricted below. Speculum of sinistral elytron less elongated, its anal margin being more rounded. Stridulating teeth shorter, though the number is twenty-seven, about equalling that of the typical form. Male cercus more robust in the basal part. Male subgenital plate elongated as in the typical form, but not so constricted at the middle region and its caudal margin is triangularly excised. In the female the differences are so slight that the differentiation of both forms is rather difficult. It may, however, be noted that ovipositor is slightly more slender in the new form. Spine formula of caudal femur:  $\frac{\text{E-4-16}}{\text{I-4-18}}$  (large spines are four to five, the rest being spinules). Spine formula of caudal tibia:  $\frac{\text{E-17-26.1-II-10-14}}{\text{I-19-26.1-II-6-14}}$  (in one exceptional case dorso-outer spines of dextral tibia are fourteen). Thus the number of spines is fairly variable, and scarcely offers any subspecific criterion.

*Measurements:* ♂ Long. corp. 20–21; long. pron. 6–7; long. fem. ant. 6–8; long. fem. post. 17.5–19; long. el. 26–30; lat. el. 9.5–11; ♀ long. corp. 19; long. pron. 5.5; long. fem. ant. 6; long. fem. post. 18–19; long. el. 25–27; lat. el. 6; long. ovip. 16–17 mm. (Apparently no size difference between two forms).

*Distribution:* Holotype, 1 ♂ (Toyosina near Matumoto, Sinano Prov.); allotype, 1 ♀ (Matumoto, Sinano Prov.); paratypes, 4 ♂♂ (Morioka and Nikkō), 1 ♀ (Matumoto), (all in the author's coll.). Thus this form ranges from Northern Honshū to mountainous regions of Middle Honshū.

*Note:* Since several years I have noticed that the specimens from mountainous regions are not strictly identical with those of the plane. Recently Prof. HAREYAMA called my attention to the fact that the chromosome number of the former is thirty-three, while that of the latter is thirty-one. This information led me to examine the specimens (including

those presented by him) in détail. After a careful study, I came to the conclusion that they should be treated as different subspecies.

*Hexacentrus japonicus japonicus* KARNY

*Synonymy:* *H. japonicus* KARNY 1907: Abh. K. K. zool.-bot. Ges. Wien, 4, Ht. 3, S. 108 u. 111; KARNY 1912: Gen. Ins., 131, p. 16; KÄSTNER 1933: Stett. Ent. Ztschr., 94, S. 37; FURUKAWA 1938: Annot. Zool. Jap., 17, p. 560, fig. 7.

Vértex of fastigium laterally viewed more constricted below. Speculum of sinistral elytron more elongated, its anal margin is more straight. Stridulating teeth longer, the number being twenty-eight. Male cercus more slender in basal part. Male subgenital plate elongated (see my figure, 1938 l. c.), constricted at the middle portion and the caudal margin truncate ("L. subgen. ♂ .....apice truncata" KARNY 1907 l. c.) or *de facto* slightly concave. Ovipositor a little shorter.

*Measurements:* ♂ Long. corp. 19–21; long. pron. 6–7; long. fem. ant. 7–8; long. fem. post. 17–19; long. el. 26–29; lat. el. 9–10; ♀ long. corp. 20–21; long. pron. 6; long. fem. ant. 6–8; long. fem. post. 20–21; long. el. 25–31; lat. el. 6–7; long. ovip. 15–16 mm.

*Distribution:* This form ranges from flat regions of Middle Honshū to Southern Honshū, Sikoku and Kyūshū. The type-locality is Yokohama.

*Species specificity of H. japonicus:* *H. japonicus* is undoubtedly a northern derivative of *H. unicolor* SERV. and its resemblance to *H. pusillus* REDT. and *H. brachypterus* KARNY seems to be merely due to convergence. As the caudal margin of ♂ subgenital plate of *H. japonicus* is either truncate (*japonicus* s. str.) or excised (*hareyamai*), it does not offer any absolute discriminating character against *H. unicolor* which has an excised one. According to KARNY, *H. japonicus* is provided with "antennae concolores", but this statement is quite erroneous, because the antenna has distinct brown annules as pointed out by KÄSTNER. Thus the only reliable characteristics which differentiate it from *H. unicolor* are:—1) elongated male subgenital plate, 2) short female elytron which does not exceed caudal femur and 3) relatively long ovipositor. In Formosa the form is replaced by *H. unicolor* and *H. mundus* WLK. (it is very probable that *H. mundus* is merely a eurypterous "forma" of *H. unicolor*—cf. formae of *Mecopoda elongata*!). These three forms belong undoubtedly to a Formenkreis.

2. Female of *Hexacentrus spiniger*

*Hexacentrus spiniger* KARNY 1920: Verh. zool.-bot. Ges. Wien, 70, S. 32, ♂; KARNY 1921: Philip. J. Sc., 18, p. 160; KARNY 1926: Treubia, 9, S. 178.

The female seems not to have been described as yet. The general shape is robust and strong. Frons very flat and rather concave in lateral view. Sulci of pronotum deeper than in *unicolor*-group; caudal margin of epinotum straight; marganotum quite strong in metazona; caudal margin

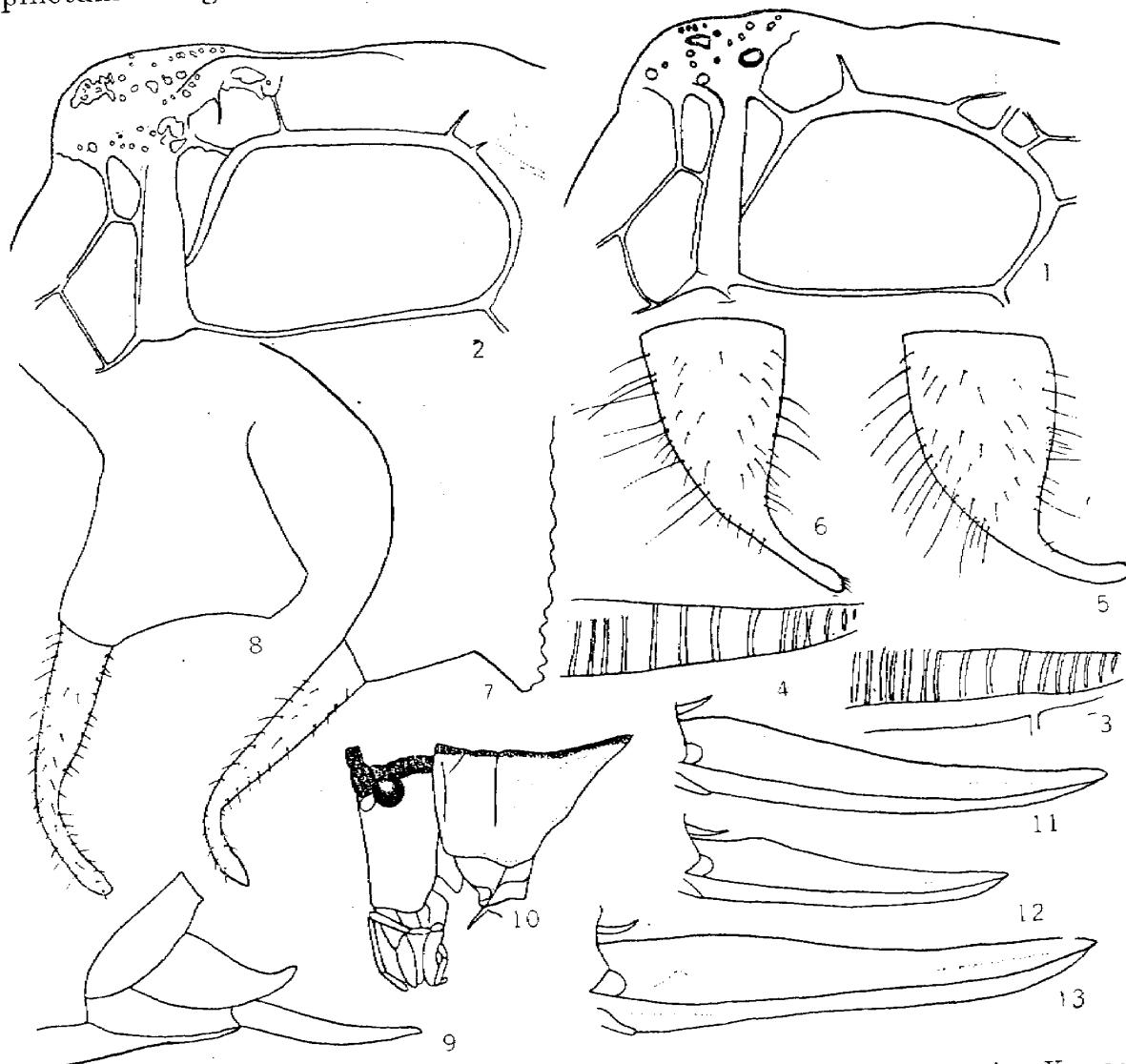


Fig. 1, 3, 5, 7, *Hexacentrus japonicus hareyamai* FURK.; 2, 4, 6, 8, 11, *H. j. japonicus* KARNY; 9, 12, *H. unicolor* SERV. (Philippines); 10, 13, *H. spiniger* KARNY (Philippines).  
Fig. 1, 2, ♂, sinistral stridulating field,  $\times 13.5$ ; 3, 4, ♂, stridulating teeth (pt.),  $\times 34$ ; 5, ♂, cercus,  $\times 30$ ; 7, 8, ♂, subgenital plate,  $\times 30$ ; 9, ♂, abdominal apex,  $\times 13.5$ ; 10, ♀, head and pronotum,  $\times 3$ ; 11, 12, 13, ♀, ovipositor,  $\times 3$ .

of pleuranotum clearly undulating. Dorsal margin of ovipositor only slightly expanded subbasally, ratio of breadth to length 1:6 (1:5, in *unicolor*; 1:5.5, in *japonicus*). Lamina subgenitalis triangular, with a small apical excision. Elytron very long, much exceeding femoral apex; cephalic margin somewhat expanded, caudo-apical margin more or less truncate; basal

transverse veinlets of *Area C-Sc* regularly parallel; *Rs* less approaching *R* at apex than in *unicolor*-group, with three branches. Spine formula of caudal femur:  $\frac{\text{E-31-34}}{\text{I-24-25}}$  (large spines are seven to eight). Spine formula of caudal tibia:  $\frac{\text{E-26-30-1-II-12-13}}{\text{I-22-31-1-II-10-12}}$  (dorsal spines are more numerous than in *unicolor*-group). The general coloration is quite same as in the male; two sexes are especially alike in black markings of appendages.

*Measurements*: Long. corp. 25; long. pron. 8; long. fem. ant. 10; long. fem. post. 25; long. el. 42; lat. el. 9; long. ovip. 16 mm.

Neallotype, 1 ♀ (Mt. Maquiling, 200 m., Philippines, 1936, XII/22, I. M. SAGARO leg.), coll. m. Thus the specimen is quite topotypic. I should like to express my hearty thanks to Prof. L. UICHANCO who placed the interesting material at my disposal.

Though HEBARD 1922 (Proc. Acad. Nat. Sc. Philad., 74, p. 269) doubted the validity of this form, the study of the female specimen seems to support KARNY's opinion (1926 l. c.) that it can stand.